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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,601	11/19/2001	David Alan Pears	P 281297	3270

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EXAMINER

SHOSHO, CALLIE E

ART UNIT PAPER NUMBER

1714

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

HC

# Office Action Summary

Application No.

09/868,601

Applicant(s)

PEARS ET AL.

Examiner

Callie E. Shosho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 7-18 is/are rejected.
- 7) ☒ Claim(s) 3-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. All outstanding objections and rejections except for those described below are overcome by applicants' amendment filed 2/26/03.

The following action is non-final given that in the previous office action mailed 10/30/02, Paper No. 8, examiner inadvertently set forth the incorrect column and line numbers with respect to Ikeda et al. (U.S. 5,952,429). Thus, the rejection with respect to Ikeda et al. is re-stated below (with new grounds of rejection necessitated by applicants' amendment) with the correct column and line numbers.

**Claim Objections**

2. Claims 7-8 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claims 7, which depends on claim 1, recites that the water-dissipatable polymer is an olefinic polymer while claim 8, which depends on claim 1, recites that the olefinic polymer is obtained from polymerizing one or more olefinically unsaturated monomers having water-dispersing groups and one or more olefinically unsaturated monomers having hydroxy functional groups optionally in the presence of one or more olefinically unsaturated monomers which are free from water-dispersing groups and hydroxy functional groups. Claim 1, however, recites that the water-dissipatable polymer is prepared by polymerizing 1-95% monomers having hydroxy

functional groups, 1-95% monomers having water-dispersing groups, and 0-95% monomers which are free from water-dispersing groups and hydroxy functional groups.

Thus, both claim 7 and claim 8 are broader than the claim on which they depend. Claim 7 broadly discloses olefinic polymer which encompasses many polymers outside the scope of the polymer recited in claim 1. Claim 8 discloses that the polymer is obtained from the same monomers as disclosed in claim 1, but given that there are no amounts associated with the monomers, claim 8 is broader than claim 1 because the polymer can be obtained from any amount of each of the monomers while claim 1 is limited to using the three monomers in the recited amounts.

**Claim Rejections - 35 USC § 103**

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-2, 7-9, 11, and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. (U.S. 5,952,429) in view of Tsutsumi et al. (U.S. 6,031,019).

Ikeda et al. disclose ink jet ink comprising liquid medium containing water and solvent and 1-20% carbon black grafted polymer which comprises carbon black attached to polymer through ester or ether linkage. The polymers include hydroxyl-containing polymers that possess number average molecular weight of 1,000-100,000. The carbon black is attached to the polymer by reacting functional group on carbon black with reactive group on polymer. It is further disclosed that the ink is printed onto substrate such as paper or film using an ink jet printer which

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would inherently contain the above ink in an ink jet cartridge (col.16, lines 34-38, col.17, lines 40-52, col.24, lines 29-37, col.29, lines 57-63, col.30, line 10, col.34, lines 21-23, col.39, 22-35 and 36-41, col.39, line 62-col.40, line 10, col.40, lines 36-51, col.54, lines 39-41, col.54, line 64-col.5, line 39, and col.55, lines 48-57). Although there is no explicit disclosure that the polymer with attached colorant is completely dissipated in the liquid medium, given that Ikeda et al. disclose polymer with attached colorant and medium identical to that presently claimed, it is clear that the polymer with attached colorant would intrinsically be completely dissipated in the liquid medium.

The difference between Ikeda et al. and the present claimed invention is the requirement in the claims of (a) the viscosity of the ink and (b) amounts of monomers used to obtain polymer.

With respect to difference (a), while Ikeda et al. disclose ink comprising water-dissipatable polymer covalently attached to colorant and liquid medium, there is no disclosure of the viscosity of the ink.

Tsutsumi et al., which is drawn to ink jet ink comprising colored resin emulsion, disclose that the ink possesses viscosity of 0.5-8 cP in order to produce ink that does not feather and ejects adequately from the printer (col.12, lines 44-54).

In light of the motivation for using ink jet ink with specific viscosity disclosed by Tsutsumi et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to control the viscosity of the ink jet ink of Ikeda et al. to such viscosity in order to produce ink that does not feather and ejects adequately from the printer, and thereby arrive at the claimed invention.

With respect to difference (b), Ikeda et al. disclose carbon black grafted polymer wherein the polymer obtained from monomers comprising hydroxy functional groups, i.e. hydroxyalkyl (meth)acrylate, monomers having water-dispersing groups, i.e. (meth)acrylic acid, and monomer free from hydroxy functional groups and water-dispersing groups. However, there is no disclosure of the amount of each monomer used. However, given that the amount of each monomer utilized controls the properties of the polymer, i.e. dispersability, acid number, reactivity, etc. and given the broad ranges presently claimed for each monomer, it therefore would have been obvious to one of ordinary skill in the art to choose amounts of each monomer, including those presently claimed, in order to produce polymer with desired properties, and thereby arrive at the claimed invention.

5. Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. in view of Tsutsumi et al. as applied to claims 1-2, 7-9, 11, and 13-18 above, and further in view of Sacripante et al. (U.S. 6,251,987).

The difference between Ikeda et al. in view of Tsutsumi et al. and the present claimed invention is the requirement in the claims of amount of water and solvent.

Sacripante et al., which is drawn to ink jet ink comprising colored resin emulsion, disclose that the ink comprises 50-99.5% liquid medium which comprises water and solvent in ratio of 97:3 to 50:50 (col.7, line 66-col.8, line 3 and col.8, lines 25-30).

In light of the motivation for using specific amount of water and solvent disclosed by Sacripante et al. as described above, it therefore would have been obvious to one of ordinary skill

in the art to use these amounts of water and solvent in the ink jet ink of Ikeda et al. in order to produce ink with suitable drying rate, and thereby arrive at the claimed invention.

### **Response to Arguments**

6. Applicants arguments regarding Moffatt et al. (U.S. 6,221,932), Foucher et al. (U.S. 5,786,410), Pawlowski et al. (U.S. 5,230,733), and Swanson et al. (U.S. 4,381,185) have been considered but they are moot in view of the discontinuation of these references against the present claims.

7. Applicants arguments filed 2/26/03 have been fully considered but, with the exception of arguments relating to Moffatt et al., Foucher et al., Pawlowski et al., and Swanson et al., they are not persuasive.

Specifically, applicants argue that there is no disclosure in Ikeda et al. of polymer having colorant attached thereto by means of a hydroxy functional group through covalent -O- link.

However, it is noted that col.16, lines 34-38 and col.17, lines 40-48 of Ikeda et al. disclose reacting hydroxy or carboxy group on the surface of carbon black with reactive group of polymer in order to form carbon black attached to polymer through ester or ether group. Thus, it appears that Ikeda et al. do disclose polymer having colorant attached through covalent -O- link as required in the present claims. Further, it is noted that the polymers disclosed by Ikeda et al. include those obtained from monomers having pendant hydroxy functional groups and monomers providing water-dispersing groups. Specifically, Ikeda et al. disclose the use of hydroxy group containing block or graft copolymer wherein the copolymer is obtained from

monomers which hydroxy functional group such as hydroxyalkyl (meth)acrylate and hydroxyalkyl (meth)acrylamide and monomers providing water-dispersing groups such as (meth)acrylic acid (col.24, lines 29-37, col.29, lines 51-63, col.30, line 10, col.39, lines 22-35 and 36-41, col.39, line 62-col.40, line 10, and col.40, lines 36-51).

In light of the above, Ikeda et al. remains a relevant reference against the present claims.

**Allowable Subject Matter**

8. Claims 3-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 3-6 would be allowable over the "closest" prior art Ikeda et al. (U.S. 5,952,429) if rewritten in independent form including all of the limitations of the base claim and any intervening claims given that there is no disclosure or suggestion in Ikeda et al. of attaching colorant to water-dissipatable polymer by reaction between pendant hydroxy group on polymer with colorant precursor and subsequently converting the colorant precursor to colorant by diazotization reaction or any disclosure of attaching colorant to water-dissipatable polymer by reaction between pendant hydroxy group on polymer with bridging compound thereby forming covalent bond there between and subsequently reacting bridging compound with colorant or colorant precursor.



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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Callie E. Shosho  
Examiner  
Art Unit 1714

CS  
May 17, 2003